REMARKS

Reconsideration and allowance of the subject application are respectfully requested.

Claims 30-36 and 38-71 stand rejected under 35 USC §103(a) as being obvious in view of U.S. 2004/0196861 to Rinchiuso and US 20070097941 to Le. This rejection is respectfully traversed.

The technology in this application relates to polling of user equipment in packet-based data communication systems. Some mobile communication systems permit pre-reservation of uplink radio resources in order to reduce the latency or round trip time (RTT) of the system. For example, the extended uplink temporary block flow (UL_TBF) enables this pre-reservation of uplink radio resources in 3GPP_R4 which permits the RTT to be reduced from about 450 milliseconds (prior to 3GPP_R4) to about 200 milliseconds (with extended uplink temporary block flow). But a problem with UL_TBF and the pre-reservation of radio resources is that in order to maintain the pre-reserved resource, the mobile terminal must transmit an extensive amount of data. The data transmission is mandatory regardless of whether the mobile terminal has any user data to send. This leads to transmission of large amounts of "dummy data" on the uplink. There is also a high price to pay in terms of battery time in the mobile terminal as well as interference resulting in reduced network capacity. In the non-limiting example described in the background section of this application, reducing the RTT from 450 milliseconds to 200 milliseconds may reduce the mobile terminal's battery time by more than 50 percent and increase the uplink interference in a GPRS system from a GPRS mobile terminal by more than a 100 percent.

The Rinchiuso reference describes temporary block flows to transfer data packets in a GPRS system where the data channel remains active with multiple users sharing access to the

channel. Normally, when a data transmission ceases, a base station terminates the TBF by setting a final block indicator bit (FBI) to 0. But in Rinchiuso's patent application, a transmitting entity holds to the TBF for an extended delay period in order to "obtain measurement data from the mobile and give the mobile opportunities to establish an uplink TBF." See [0051]. To accomplish this, "dummy radio link control (RLC) data will be at least occasionally transmitted by the network during the time period that the network is holding the downlink TBF. During delayed release of an uplink TBF, the mobile is requested to occasionally transmit uplink blocks during the time period that the network is holding the uplink TBF. This time period allows the network to establish a downlink TBF and/or provides the mobile an opportunity to extend the uplink TBF without establishing another uplink TBF." *Id.*

The Examiner admits that Rinchiuso only describes one type polling, referring to paragraphs [0025] and [0057] and Figure 12, which requires that the mobile terminal transmit dummy uplink control (at blocks 1104 in Figure 11 and at 1204 in Figure 12) if no data is available to keep the channel up. Accordingly, Rinchiuso fails to disclose the first type of polling which allows the user equipment to "choose whether or not to transmit a data packet to the base station in response to reception of polling of the first type." The user equipment in Rinchiuso does not have the option of not sending some sort of data packet in response to polling.

Le also only teaches one type of polling, which is different from the single type taught in Rinchiuso, where the wireless devices "are not required to upload data responsive to being polled and in many cases do not." [0008]. Neither Rinchiuso nor Le recognized the benefits of using two different types of polling. Nor is there any reasonable basis for combining the two different types of polling as the Examiner suggests because Rinchiuso gives many different reasons why

the mobile terminal needs to transmit dummy data as explained in paragraphs [0051] and [0052] to solve the problem identified in [0004]: "Therefore a need exists for a method and apparatus for data transmission within a communication system that minimizes the number of times a user moves from a Control Hold state to an Active state," even when the mobile does not have data to send. For example, [0051] states "During delayed release of an uplink TBF, the mobile is requested to occasionally transmit uplink blocks during the time period that the network is holding the uplink TBF. This time period allows the network to establish a downlink TBF and/or provides the mobile an opportunity to extend the uplink TBF without establishing another uplink TBF."

Rinchiuso's holding a uplink channel open so that the mobile without current data to send does not have to set up a new uplink channel in order to send data a short time period later also contradicts what Le is trying to do. Le's channels are time slots. Le specifically criticizes the idea of not using all time slots to actively always transport substantive data. See for example [0005]. So the Examiner's rationale for combining Le's polling method with Rinchiuso's polling method does not make sense. Le wants to make sure that the slots are always used to transport actual mobile data. Rinchiuso, on the other hand, purposefully sends dummy data on uplink channels to hold those channels captive to a mobile even though the mobile does not have current substantive data to send just in case the mobile may have data to send in a short time.

The inventors of the technology described in the independent claims recognized an unexpected value in employing two different types of polling from the base station. In the first type of polling, it is optional for the mobile terminal to respond, and if it responds, it does so by transmitting a user data packet when there is one available. For the second of type of polling, it is mandatory for the mobile terminal to respond even if there is no user data packet to transmit.

As recited in dependent claims, in the second type of polling, the mobile terminal transmits one or more dummy packets if no user data packets are available to transmit in response to the second type of polling. By incorporating these seemingly incompatible polling functionalities in a packet-based data communication system, the inventors were able to both reduce in latency and at the same time avoid unnecessary battery drain and/or interference. And while it would be easy for the Examiner to parrot back these advantages as a reason for combining Rinchiuso and Le, that would be improper hindsight since neither reference appreciated that this was even an possibility. Indeed, a reading of both references indicates that Rinchiuso and Le counsel against such a combination for reasons explained above.

Accordingly, the rejection of the independent claims is improper and should be withdrawn. In addition, several dependent claim features are missing from both Rinchiuso and Le. For example, claims 31, 41, 46, 55, and 71 recite polling according to a first type on a first logical channel and polling according to a complementary second type on a second logical channel. The Examiner refers to figure 7 and [0049] in Rinchiuso. Figure 7 simply illustrates uplink transmission (not any type of polling) on a first frequency and downlink transmission (not any type of polling) on a second frequency. [0049] describes the TBF as a logical connection and that any user who wants to transmit or receive will be assigned a logical channel that will use a physical data channel. But there is no specific teaching of first and second different logical channels. Nor is there a teaching of polling according to a first type on a first logical channel and polling according to a complementary second type on a second logical channel.

The inventors described one non-limiting example where the polling structure may be advantageously separated into two logical control channels. The first logical control channel is the USF UL resource grant channel to which a first type of polling response is employed to grant

messages. The second logical control channel is an explicit poll message on the DL PACCH channel where a polling scheme with a required mobile response is used. These two separate control channels are used for different purposes. The USF logical channel is used to assign UL radio resources for the purpose of user data transfer, and the DL PACCH is used primarily for the purpose of controlling the radio link quality. No where does the Examiner provide a reference that teaches a radio system having this separation into two different kinds of logical channels for the purpose of radio link quality control and uplink resource grant message.

In addition, neither Rinchiuso nor Le teaches the features recited in claims 34, 72-76: "wherein said first polling type comprises polling with an uplink state flag and said second polling type comprises polling with a control block." The Examiner cites to [0022] and [0057] in Rinchiuso. First, paragraph [0022] does not describe polling. Instead, paragraph [0022] explains that "data transmission" may take place over forward and reverse channels. There certainly is no teaching of polling with an uplink state flag or with a control block. Nor is it clear how [0057]'s final acknowledgement bit being set to 0 "without releasing the uplink TBF" teaches polling with an uplink state flag for a first type of polling or polling with a control block for a second type of polling.

The application in condition for allowance. An early notice to that effect is earnestly solicited.

Respectfully submitted,

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